

Set	Items	Description
S1	33243	AU=(CHEN, L? OR CHEN L?)
S2	2059	(STAR OR SNOWFLAKE OR SNOW() FLAKE) (2W) (SCHEMA? OR SCHEME? - OR QUERY OR QUERIES)
S3	0	S1 AND S2
? show files		
File	2:INSPEC	1969-2005/Jul W1 (c) 2005 Institution of Electrical Engineers
File	35:Dissertation Abs Online	1861-2005/Jun (c) 2005 ProQuest Info&Learning
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File	474:New York Times Abs	1969-2005/Jul 13 (c) 2005 The New York Times
File	475:Wall Street Journal Abs	1973-2005/Jul 13 (c) 2005 The New York Times
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File	34:SciSearch(R) Cited Ref Sci	1990-2005/Jul W2 (c) 2005 Inst for Sci Info
File	15:ABI/Inform(R)	1971-2005/Jul 13 (c) 2005 ProQuest Info&Learning
File	20:Dialog Global Reporter	1997-2005/Jul 14 (c) 2005 The Dialog Corp.
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File	813:PR Newswire	1987-1999/Apr 30 (c) 1999 PR Newswire Association Inc
File	634:San Jose Mercury	Jun 1985-2005/Jul 13 (c) 2005 San Jose Mercury News
File	624:McGraw-Hill Publications	1985-2005/Jul 13 (c) 2005 McGraw-Hill Co. Inc
File	9:Business & Industry(R)	Jul/1994-2005/Jul 13 (c) 2005 The Gale Group
File	275:Gale Group Computer DB(TM)	1983-2005/Jul 14 (c) 2005 The Gale Group
File	621:Gale Group New Prod. Annou. (R)	1985-2005/Jul 14 (c) 2005 The Gale Group
File	636:Gale Group Newsletter DB(TM)	1987-2005/Jul 13 (c) 2005 The Gale Group
File	16:Gale Group PROMT(R)	1990-2005/Jul 13 (c) 2005 The Gale Group
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File 148:Gale Group Trade & Industry DB 1976-2005/Jul 14
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File 674:Computer News Fulltext 1989-2005/Jul W2
(c) 2005 IDG Communications
File 370:Science 1996-1999/Jul W3
(c) 1999 AAAS
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et	Items	Description
S1	2393919	REVERS? OR BACKWARD? OR INVERS? OR CONVERS?
S2	317	(STAR OR SNOWFLAKE OR SNOW()FLAKE) (1W) (SCHEMA? OR SCHEME? - OR QUERY OR QUERIES)
S3	723053	DATABASE? OR DATABANK? DATAWAREHOUS? OR DATA() (WAREHOUS? OR MART? ? OR STORE? ? OR BASE OR BASES OR BANK? ? OR SYSTEM?) - OR MDDB OR OODB OR DBMS
S4	5	S1(S)S2
S5	1	S4 AND S3

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File 2:INSPEC 1969-2005/Jul W1
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5/5/1 (Item 1 from file: 2)

DIALOG(R)File 2:INSPEC

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8160067 INSPEC Abstract Number: C2004-12-6160Z-011

Title: Is there a need for another type of data warehouse ? Researching the OO data warehouse concept

Author(s): Slazinski, E.D.; Baker, K.W.

Author Affiliation: Purdue Univ., West Lafayette, IN, USA

Conference Title: SCI 2003. 7th World Multiconference on Systemics, Cybernetics and Informatics Proceedings Part Vol.16 p.172-6 Vol.16

Editor(s): Callaos, N.; Di Sciullo, A.M.; Ohta, T.; Liu, T.K.

Publisher: IIIS, Orlando, FL, USA

Publication Date: 2003 Country of Publication: USA 7750 pp.

ISBN: 980 6560 01 9 Material Identity Number: XX-2004-00872

Conference Title: SCI 2003. 7th World Multiconference on Systemics, Cybernetics and Informatics Proceedings

Conference Sponsor: WOSC: World Organization on Systemics and Cybernetics ; Centre for Syst. Studies; Syst. Soc. of Poland; Soc. Applied Syst. Res.; Slovenian Artificial Intelligence Soc.; Simon Bolivar Univ.; Polish Syst. Soc.; Italian Soc. of Systemics; ISSS; ISI; IFSR; Cybernetics and Human Knowing; CUST; Concurrency and Architecture Group, the Telematics Eng. Department of the Univ. of Las Palmas of Gran Canaria; Tunisian Sci. Soc.; ANS; Lab. of Res. of Computational Intelligence/Department of Informatic/San Luis Nat. Univ.; American Soc. of Cybernetics; Wolfram Res. Inc

Conference Date: 27-30 July 2003 Conference Location: Orlando, FL, USA

Language: English Document Type: Conference Paper (PA)

Treatment: Practical (P)

Abstract: Both the **data warehouse** and the object-oriented methodologies have been proven as an effective means to accomplish their respective business goals. There is now a proposal for the information technology arena to consider the development of an object-oriented **data warehouse** (OODW). The most popular model used for **data warehousing** presently is the **star schema**. The OODW methodology stems from the need for increasing efficiency through use of **inverse** methods. An object-oriented approach would allow for all these behaviors and attributes to be stored while providing the flexible storage structure of a **star schema**. This paper examines the current definition of an object-oriented **database**, the advantages and disadvantages of such a structure over a conventional **star schema** and poses questions to educators who teach **data warehousing** techniques. (8 Refs)

Subfile: C

Descriptors: **data warehouses** ; object-oriented **databases** ; object-oriented methods; software engineering

Identifiers: **data warehouse** ; object-oriented methodologies; business goals; information technology; star schema; OODW methodology; inverse methods; object-oriented **database** ; information systems development; information systems management

Class Codes: C6160Z (Other DBMS); C6160J (Object-oriented databases); C6110B (Software engineering techniques); C6110J (Object-oriented programming)

Copyright 2004, IEE

Set	Items	Description
S1	1139599	REVERS? OR BACKWARD? OR INVERS? OR CONVERS?
S2	349	(STAR OR SNOWFLAKE OR SNOW()FLAKE) (1W) (SCHEMA? OR SCHEME? - OR QUERY OR QUERIES)
S3	498142	DATABASE? OR DATABANK? DATAWAREHOUS? OR DATA() (WAREHOUS? OR MART? ? OR STORE? ? OR BASE OR BASES OR BANK? ? OR SYSTEM?) - OR MDDB OR OODB OR DBMS
S4	2	S1(S)S2
S5	2	S4 AND S3
S6	2	RD (unique items)

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6/3,K/1

DIALOG(R)File 20:Dialog Global Reporter
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20253182 (USE FORMAT 7 OR 9 FOR FULLTEXT)

MetaEdge's New C-Insight 2.1 Speeds Complex Analysis of Trends

PR NEWSWIRE

December 11, 2001

JOURNAL CODE: WPRW LANGUAGE: English RECORD TYPE: FULLTEXT

WORD COUNT: 1111

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... of back- and front-end tools designed to maximize the value of information contained in **data warehouses**. The platform's patented architecture dramatically simplifies the process of producing rich metrics from multiple...

... possible to add new data sources, redefine segmentation codes or make other alterations to the **data warehouse** without reprogramming. The platform also provides predictive functionality permitting the creation of forward-looking and exploratory models.

Data can be analyzed from an existing **data warehouse** or easily imported into a **data warehouse** from **data marts** and on-off data sources with any major ETL tool. The results of C-Insight...

...Department. "It's a simple but sophisticated package that is allowing us to build a **data warehouse** and extract the data we need without expensive consulting services."

"C-Insight offers a faster and more flexible means of transforming the information in **data warehouses** into the vital intelligence that enterprises require to make strategic decisions," said Li-Wen Chen...

...ever before."

Patented Architecture for Rapid Application Development

C-Insight utilizes a patent-pending "reverse **star schema**" architecture that offers key speed, flexibility and expandability advantages over traditional "**star schema**" implementations. This unique infrastructure permits the use of an expanded metadata layer that, in conjunction...

...adding location information to all analytical fields, C-Insight can then create a location-centric **data warehouse**, which can be navigated using a digital map with embedded links to underlying data structures... discovering critical business relationships. After three years of successfully building and deploying very large-scale **data warehouse** projects worldwide, MetaEdge engineered a solution for the enterprise that provides customizable, dynamic insight. With...

6/3,K/2

DIALOG(R)File 20:Dialog Global Reporter
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15009011 (USE FORMAT 7 OR 9 FOR FULLTEXT)

Metagenix Announces \$25,000 Desktop Data Profiling and Analysis Tool

PR NEWSWIRE

February 06, 2001

JOURNAL CODE: WPRW LANGUAGE: English RECORD TYPE: FULLTEXT

WORD COUNT: 650

(USE FORMAT 7 OR 9 FOR FULLTEXT)

MetaRecon 2.5 is a significant new development for IT departments implementing CRM, ERP, **data warehouse**, Ecommerce, merger and acquisition, and data conversion solutions. MetaRecon 2.5 dramatically reduces project risk...

...Informatica PowerMart Interface. - Enhanced collaboration with extensive note and document management. - Unix server support. - Cross **database** relationship analysis. - Enhanced analysis review interfaces. - Sortable grids for all analysis. - Data "drill-down" from...

... primary keys. - Inference of foreign key relationships. - Automatic generation of a normalized data model. - Creates **star schemas**. - Infers candidates for measures and dimensions. - Automatic generation of transformations. - Robust transformation mapping editor for...

Set	Items	Description
S1	600189	REVERS? OR BACKWARD? OR INVERS? OR CONVERS?
S2	247	(STAR OR SNOWFLAKE OR SNOW()FLAKE) (1W) (SCHEMA? OR SCHEME? - OR QUERY OR QUERIES)
S3	508351	DATABASE? OR DATABANK? DATAWAREHOUS? OR DATA() (WAREHOUS? OR MART? ? OR STORE? ? OR BASE OR BASES OR BANK? ? OR SYSTEM?) - OR MDDB OR OODB OR DBMS
S4	3	S1(S)S2
S5	3	S4 AND S3
S6	3	RD (unique items)

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File 624:McGraw-Hill Publications 1985-2005/Jul 13
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00688811 20011211CGTU052 (USE FORMAT 7 FOR FULLTEXT)
MetaEdge's C-Insight 2.1 Speeds Complex Trend Analysis
PR Newswire
Tuesday, December 11, 2001 14:01 EST
JOURNAL CODE: PR LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT
DOCUMENT TYPE: NEWSWIRE
WORD COUNT: 1,126

LEAD PARAGRAPH:

SUNNYVALE, Calif., Dec. 11 /PRNewswire/ - MetaEdge Corp., a global provider of business and public sector analytic applications, today announced the release of Version 2.1 of its C-Insight business analysis platform, an integrated suite of back- and front-end tools designed to maximize the value of information contained in **data warehouses**. The platform's patented architecture dramatically simplifies the process of producing rich metrics from multiple enterprise and third party data sources, saving time and money by reducing IT tasks as well as empowering end users to generate sophisticated analytics with little or no IT intervention.

At the heart of C-Insight is a wizard-driven KPI Development Toolkit that quickly aggregates key performance indicators such as customers' average purchase sizes, most recently purchased products, most purchased brands and number of annual purchases. Unique wizard-based knowledge transformation services that have been expanded in the new edition enable end users or IT personnel to rapidly merge multiple data sets into derived attributes with a simple point-and-click procedure, uncovering complex behavior patterns and other revealing trends without the need for labor-intensive coding and data modeling.

Other unique C-Insight features that streamline the process of analyzing data include graphical wizards for the easy design, processing and publishing of OLAP cubes; the ability to store derived attributes, segmentations and profiles for enterprise-wide consistency and faster query performance; and extensibility that makes it possible to add new data sources, redefine segmentation codes or make other alterations to the **data warehouse** without reprogramming. The platform also provides predictive functionality permitting the creation of forward-looking and exploratory models.

Data can be analyzed from an existing **data warehouse** or easily imported into a **data warehouse** from **data marts** and on-off data sources with any major ETL tool. The results of C-Insight's analysis can be deployed to reports, information portals, geographic maps, and executive dashboards as well as OLAP cubes. Analysts can either use the suite's built-in relational and OLAP reporting tools or seamlessly export data to leading desktop, relational, OLAP

and/or traditional business intelligence applications.

"C-Insight 2.1 gives us a complete, self-contained set of tools for mapping crime patterns that will make it possible for us to focus our patrols in the areas where we are needed the most," said Derek Marsh, director of IT

for the Westminster (California) Police Department. "It's a simple but sophisticated package that is allowing us to build a **data warehouse** and extract the data we need without expensive consulting services."

"C-Insight offers a faster and more flexible means of transforming the information in **data warehouses** into the vital intelligence that enterprises

require to make strategic decisions," said Li-Wen Chen, CEO of MetaEdge.

"By providing an integrated and highly automated back- and front-end toolset, we give our customers the ability to analyze their performance at a highly granular level with much less effort and expense than ever before."

Patented Architecture for Rapid Application Development

C-Insight utilizes a patent-pending "**reverse star schema**" architecture that offers key speed, flexibility and expandability advantages over traditional "**star schema**" implementations. This unique infrastructure permits the use of an expanded metadata layer that, in conjunction with the platform's dynamic mapping capabilities, makes it possible to fuse disparate data sets into composite attributes and profiles that are unavailable in conventional solutions without IT assistance. The metadata repository also houses all attributes, segmentations and profiles for fast and easy access. The same data structure provides vital scalability, making the addition of a new channel or a new kind of segmentation as easy as adding another item to a menu.

COMPANY NAMES: MetaEdge Corporation; S AND S PUBLIC RELATIONS

INDUSTRY NAMES: CORPORATE; MARKETING; NEW PRODUCT DEVELOPMENT; ADVERTISING AND PROMOTION; COMPUTER SOFTWARE; COMPUTERS; 1DATABASE SOFTWARE; **DATABASES** ; INFORMATION MANAGEMENT; LEGAL; MANAGEMENT SOFTWARE; PATENTS AND TRADEMARKS

EVENT NAMES: PRODUCT LAUNCHES; NEW PRODUCT DEVELOPMENT; ADVERTISING AND PROMOTION; CORPORATE FINANCIAL DATA; LEGAL; MANAGEMENT PROCEDURES; PATENTS AND TRADEMARKS; TECHNOLOGY DEVELOPMENT; THEORETICAL ANALYSIS

6/5/2 (Item 1 from file: 813)

DIALOG(R)File 813:PR Newswire

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SFM060

Sybase, Inc. Announces WarehouseNOW Strategy for Comprehensive Enterprise Decision Support

DATE: April 7, 1997

08:15 EDT

WORD COUNT: 1,061

ORLANDO, Fla., April 7 /PRNewswire/ -- Sybase, Inc.(Nasdaq: SYBS) today announced WarehouseNOW(TM), an end-to-end **data mart** driven solution for enterprise, distributed decision support. Sybase's WarehouseNOW reduces the complexity and time required to implement an enterprise **data warehouse**

JMB

Date: 14-Jul-05

infrastructure by offering a complete set of software products that address the four key areas necessary for building successful **data warehouses**. WarehouseNOW consists of best-of-breed components including design and modeling, transformation and movement as well as data storage and access tools optimized to extend enterprise decision support systems to the Internet and beyond. The WarehouseNOW solution leverages ImpactNow(TM), Sybase's Adaptive Component Architecture(TM) (ACA) which supports the growing demand for fast, flexible deployment of logic and data on all tiers.

WarehouseNOW Product Family

The WarehouseNOW solution includes products from all of Sybase, Inc., Sybase(R), Powersoft(R) and Enterprise Connect(TM) branded product lines, to create a complete infrastructure for distributed **data warehousing**. WarehouseNOW includes several new products: Sybase IQ(TM) 11.2, the newest version of the industry-leading **database** optimized for decision support; as well as new products from Sybase's premier Replication Server(R) family including Distribution Director(TM), Distribution Agent(TM), Replication Agent(TM) for IMS and Replication Agent(TM) for VSAM. Also included is WarehouseArchitect(TM), a new tool for fast and easy design and modeling of **data warehouses** and **data marts**. Other technology assets in WarehouseNOW include Enterprise Connect(TM) for access to heterogeneous data sources and Sybase SQL(R) Server 11 for building scalable consolidation warehouses. Additionally, Sybase provides flexible data access via a choice of tools including PowerBuilder, InfoMaker(TM), leading partner analytic tools and Dynamo(TM), its powerful Internet access tool.

"The challenges of building a **data warehouse** today can be overwhelming," said Gary Steele, vice president and general manager of middleware and **data warehousing** at Sybase, Inc. "Sybase is the only company to offer a complete set of integrated software components with WarehouseNOW, as part of the Adaptive Component Architecture, that enables customers to design, quickly implement and deploy enterprise **data warehouses** and **data marts**."

Sybase IQ 11.2 Enhanced To Continue Lead In Analytic **Data Marts**

Sybase IQ 11.2, which is generally available today, extends the industry-leading query speeds, flexibility and economics that have made it the leading decision support optimized **database** server in the market. New features in this version include support for SQL views, parallel backup and restore and new memory management administration.

With release 11.2, Sybase IQ begins phased support of SQL views. This initial phase will provide support for security views so management can provide employees and customers access to data on a need-to-know basis.

"Security is extremely important at ODS Health Plan as we provide claims processing services for many insurers," said Jeff Sexton, senior programmer/analyst at ODS Health Plan. "Sybase IQ 11.2 now offers enhanced security that allows ODS to provide our clients with meaningful views of their data while protecting the confidentiality of other information."

The new shared memory management model in Sybase IQ 11.2 is designed to significantly reduce per-user memory requirements, thus improving multi-user performance. This enables customers to deploy **data marts** to even more users without requiring costly memory upgrades by adding these users to existing systems.

The new fast, flexible online parallel backup and restore capability in Sybase IQ 11.2 gives customers the ability to back up and restore data online more frequently and easily. This will significantly increase the reliability in deploying mission critical **data marts**.

WarehouseArchitect

WarehouseArchitect is a new module from the Powersoft(R) PowerDesigner(TM) 6.0 (formerly called S-Designor) family of tools announced on March 24, 1997. WarehouseArchitect is used to design and build **data warehouses** and **data marts** and maintains a map between source information and warehouse data for use in data cleansing, extraction and end-user query. With this tool designers can **reverse**-engineer and import source information and generate schemas for warehouse-optimized **databases** such as Sybase IQ. As a result WarehouseArchitect works with Sybase IQ 11.2 to provide faster **data mart** design and deployment. WarehouseArchitect will also provide support for dimensional modeling including star and **snowflake schemas**, aggregation, partitioning, summarization and dimensional hierarchies.

Data Movement Products Extended To Support WarehouseNOW

Sybase's premier Replication Server(R) family of products has been extended to support the WarehouseNOW **data warehouse** solution. Four new products have been added to the Replication Server family; Distribution Agent(TM) for MVS, Distribution Director(TM), Replication Agent(TM) for IMS and Replication Agent(TM) for VSAM. These new products offer high-speed data loading and incremental refresh all in a managed **data warehouse** environment.

Product Availability

The following products are currently available: Replication Server, SQL Server 11, Sybase IQ 11.2, PowerBuilder, InfoMaker, Dynamo, and Enterprise Connect. WarehouseArchitect is currently in beta testing and is currently scheduled to ship in Q2 this year. Distribution Agent, Distribution Director, Replication Agent for IMS and VSAM are currently scheduled to enter into beta in Q2 1997 and are scheduled to ship later this year. All new product pricing will be announcement at time of general availability.

Sybase, Inc.

Headquartered in Emeryville, CA, Sybase, Inc. is a worldwide leader in distributed, open computing solutions with record revenues in 1996 of over \$1 billion. The company provides customers and partners with the software and services to create business solutions for strategic, competitive advantage. These high-performance, end-to-end solutions encompass client/server, Internet and intranet transaction processing and **data mart** and **data warehousing** applications. The company's ImpactNow(TM) Adaptive Component Architecture(TM) enables rapid design, development and deployment of distributed multi-tier business applications. The company's product lines include Sybase high performance **database** servers, Enterprise Connect distributed data access and connectivity products, and Powersoft open development and design tools. The company's Internet addresses are <http://www.sybase.com> and <http://powersoft.com>.

NOTE: Sybase, Sybase IQ, ImpactNow, Adaptive Component Architecture, WarehouseArchitect, Replication Server, SQL Server, SQL Anywhere, Powersoft, PowerBuilder, InfoMaker, Dynamo, QuickStart **Data Mart**,

Enterprise Connect, Distribution Agent and Distribution Director are trademarks or registered trademarks of Sybase, Inc. or its subsidiaries. All other company and product names mentioned may be trademarks or registered trademarks of the companies with which they are associated.

SOURCE Sybase Inc.

CONTACT: Mary Shank-Rockman of Sybase, Inc., 510-922-4165, or marysr sybase.com; or Amy Rosenthal of Lois Paul & Partners, 415-286-3836, or amy rosenthal lpp.com, for Sybase

Sybase press releases available through Company News On-Call by fax, 800-758-5804, ext. 100551, or at <http://www.prnewswire.com>

(SYBS)

COMPANY NAME: SYBASE INC.
TICKER SYMBOL: SYBS (NDQ)
PRODUCT: COMPUTER, ELECTRONICS (CPR)
DESCRIPTORS: NEW PRODUCTS & SERVICES (PDT)
STATE: CALIFORNIA (CA); FLORIDA (FL)
SECTION HEADING: BUSINESS; TECHNOLOGY

6/5/3 (Item 2 from file: 813)
DIALOG(R)File 813:PR Newswire
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1072795 NEM022
Sybase, Inc. Unveils Powersoft S-Designor 6.0

DATE: March 24, 1997 12:18 EST WORD COUNT: 1,139

CONCORD, Mass. , March 24 /PRNewswire/ -- Sybase, Inc. (Nasdaq: SYBS) today announced Powersoft(R) S-Designor(R) 6.0, a major upgrade of its market- leading integrated family of open, result-driven modeling tools. S-Designor 6.0 enables **database** designers and developers to build highly optimized and functional **databases** , **data warehouses** and "data-aware" components.

The new version features WarehouseArchitect(TM), a new module for designing and building **data warehouses** and **data marts** ; a Web generator for creating dynamic Web sites directly from a data model; and application generation support for Optima++(TM) and Delphi.

"Organizations building **data warehouses** and Internet applications have a unique set of design and generation requirements," said Steve Clark, Sybase, Inc.'s general manager of Powersoft design tools. "With this release of S-Designor, we deliver an impressive array of enhancements and new capabilities that expand our family of open, result-driven modeling tools to users designing and building **data warehouses** and data-driven Web sites."

"The new features in S-Designor 6.0 demonstrate that Sybase is doing a good job of extending its design toolset to a new class of users," said Frank Gillett, senior analyst in the **data warehouse** and business intelligence service at Hurwitz Group. "The new WarehouseArchitect simplifies the task of designing and constructing **data warehouses** and

data marts . It's one of the few tools that addresses the complex needs of **data warehouse** designers and succeeds in raising the bar for competing products."

S-Designor 6.0's modular toolset is composed of an integrated set of analysis and design tools. The six modules that make up the S-Designor family include DataArchitect(TM) for **database** design and construction; WarehouseArchitect for **data warehouse** design and construction; ProcessAnalyst(TM) for capturing data flow within a business; AppModeler(TM) (standard and desktop editions) for physical data modeling and data-aware component generation; MetaWorks(TM) for model management and team design; and Viewer(TM) for read-only access to model information.

"S-Designor 6.0 demonstrates Sybase's commitment to develop tools for result-driven modeling and reinforces its position in the market," said Dave Kelly, vice president of research services at Hurwitz Group. "The addition of support for Optima++, Delphi and Web page generators within the AppModeler module enables the company to reach a wider range of developers who require application and component generation."

S-Designor 6.0 Highlights

S-Designor 6.0 provides integrated **database** , **data warehouse** and data-aware component design and generation for **database** designers and developers. Version 6.0 features two new modules and other advanced technologies that further extend the toolset's capabilities throughout an organization. Highlights include:

-- WarehouseArchitect -- WarehouseArchitect allows designers to **reverse** - engineer and import source information and generate schemas for warehouse- optimized **databases** , such as Sybase IQ(TM) and Red Brick Warehouse, in addition to traditional DBMSs. WarehouseArchitect also provides support for dimensional modeling including star and **snowflake schemas** , aggregation, partitioning, summarization and dimensional hierarchies. Additionally, this new module maintains a map between source information and the warehouse for use in the data cleansing, extraction and end-user query process.

-- Optima++ and Delphi Generators -- In addition to enhancements to the existing PowerBuilder and Visual Basic component generators, AppModeler 6.0 adds new generators for Powersoft Optima ++ 1.5 and Borland Delphi 2.0. These new generators enable developers to leverage **database** models by rapidly producing data-aware components and application prototypes for industry- leading 4GL and 3GL development tools.

-- Web Generator -- AppModeler also adds a Web generator that enables developers to quickly create data-driven Web sites directly from a data model that provide access to **databases** and **data warehouses** .

-- Viewer -- This new module provides access to graphical representations of models and metadata information in a read-only environment for use across the enterprise. Its customizable reporting environment lets users easily document and communicate model and metadata information throughout the enterprise.

Additional Enhancements in S-Designor 6.0

In addition to the new modules and generators offered in this release, S-Designor 6.0 offers enhancements and upgrades to the rest of the family of tools. DataArchitect, the flagship **database** design and generation

module, adds numerous productivity features such as entity neighbor selection, tool tips, word wrapping and report preview. Mass change capability and enhanced relationship options make DataArchitect 6.0 more powerful and easier to use for designing highly optimized **databases**.

ProcessAnalyst 6.0, S-Designor's data flow discovery and diagramming tool, has added CRUD matrices for identifying the impact of processes on data, along with reporting templates for documenting the processes. Business rules have been added at the process level, along with the ability to link them to any ProcessAnalyst object. In addition, ProcessAnalyst is now tightly integrated with DataArchitect as **data stores** and business rules defined in ProcessAnalyst can be imported for use in the conceptual design phase in DataArchitect.

MetaWorks 6.0, the advanced teamwork module for sharing models and collaborating on **database** design and application development projects, extends its dictionary platform support to include DB2 and Ingres. Models can now be extracted at the submodel level providing teams of designers with greater flexibility for sharing models. MetaWorks 6.0 also includes a new comparison manager for comparing models before consolidating; drag-and-drop object exchange; Powersoft InfoMaker(TM), a query and reporting tool for creating and running ad-hoc and pre-defined reports and queries against the MetaWorks dictionary; and a number of administrative enhancements for managing large teams of designers and developers.

Pricing and Availability

S-Designor 6.0 is currently scheduled to ship within 90 days. Suggested North American retail list prices currently are as follows: The prices for individual modules are WarehouseArchitect, \$4,995; DataArchitect, \$2,495; ProcessAnalyst, \$1,495; MetaWorks, \$995; AppModeler, \$995; AppModeler Desktop, \$295 and Viewer, \$395.

The S-Designor DataArchitect Suite is a bundle including DataArchitect, ProcessAnalyst, AppModeler and MetaWorks; it is priced at \$4,995. The S-Designor Warehouse Suite is a bundle including WarehouseArchitect, DataArchitect, ProcessAnalyst, AppModeler and MetaWorks; it is priced at \$9,295.

Sybase, Inc.

Headquartered in Emeryville, CA, Sybase, Inc. is a worldwide leader in distributed, open computing solutions with record revenues in 1996 of over \$1 billion. The company provides customers and partners with the software and services to create business solutions for strategic, competitive advantage. The company's product groups design and develop high performance, end-to-end solutions including **databases**, middleware, and application development tools for client/server, Internet and Intranet transaction processing and **data mart** and **data warehousing** applications. The company's Internet addresses are <http://www.sybase.com> and <http://www.powersoft.com>.

NOTE: AppModeler, DataArchitect, InfoMaker, MetaWorks, Optima ++, Powersoft, ProcessAnalyst, S-Designor, Sybase, Sybase IQ, Viewer and WarehouseArchitect are trademarks or registered trademarks of Sybase, Inc. or its subsidiaries. All other company and product names mentioned may be trademarks or registered trademarks of the companies with which they are affiliated.

SOURCE Sybase, Inc.

CONTACTS: Susan L. Bourdon of Sybase, Inc., 508-287-1547 or
sbourdon powersoft.com or Paula Lowe of Lois Paul & Partners, 617-238-5746
or
paula lowe lpp.com

(SYBS)

COMPANY NAME: SYBASE, INC.
TICKER SYMBOL: SYBS (NDQ)
PRODUCT: COMPUTER, ELECTRONICS (CPR); INTERNET, MULTIMEDIA,
ONLINE (MLM)
DESCRIPTORS: NEW PRODUCTS & SERVICES (PDT)
STATE: MASSACHUSETTS (MA); CALIFORNIA (CA)
SECTION HEADING: BUSINESS; TECHNOLOGY

Set	Items	Description
S1	1393514	REVERS? OR BACKWARD? OR INVERS? OR CONVERS?
S2	871	(STAR OR SNOWFLAKE OR SNOW()FLAKE) (1W) (SCHEMA? OR SCHEME? - OR QUERY OR QUERIES)
S3	1936432	DATABASE? OR DATABANK? DATAWAREHOUS? OR DATA() (WAREHOUS? OR MART? ? OR STORE? ? OR BASE OR BASES OR BANK? ? OR SYSTEM?) - OR MDDB OR OODB OR DBMS
S4	35	S1(S)S2
S5	34	S4 AND S3
S6	31	S4(S)S3
S7	14	RD (unique items)

? show files

File 9:Business & Industry(R) Jul/1994-2005/Jul 13
(c) 2005 The Gale Group

File 275:Gale Group Computer DB(TM) 1983-2005/Jul 14
(c) 2005 The Gale Group

File 621:Gale Group New Prod.Annou.(R) 1985-2005/Jul 14
(c) 2005 The Gale Group

File 636:Gale Group Newsletter DB(TM) 1987-2005/Jul 13
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File 16:Gale Group PROMT(R) 1990-2005/Jul 13
(c) 2005 The Gale Group

File 160:Gale Group PROMT(R) 1972-1989
(c) 1999 The Gale Group

File 148:Gale Group Trade & Industry DB 1976-2005/Jul 14
(c)2005 The Gale Group

7/3,K/1 (Item 1 from file: 9)
DIALOG(R)File 9:Business & Industry(R)
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01355826 Supplier Number: 24016420

Oracle Intros Designer/2000 2.0, Plans More Tools

(Oracle Corp. rolls out beta edition of release 2.0 of Designer/2000 repository-based application and database modeling, design and generation tool)

Newsbytes News Network, p N/A

September 03, 1997

DOCUMENT TYPE: Journal (United States)

LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 577

TEXT:

...the beta edition of release 2.0 of its Designer/2000 repository-based application and **database** modeling, design and generation tool, with new features that include first-time support for Oracle8, non-Oracle **databases**, and VLDBs (very large **databases**), In an interview with Newsbytes, Steve Illingworth, senior product marketing manager, noted that the predecessor ...

...interface) with a multi-user repository and tools for automating modeling, design, and generation of **databases** and applications. Now commercially available in release 1.3.2, Designer/2000 is one of...

...Web Application Server, according to Illingworth. Through another key differentiating feature, "roundtrip engineering," users can " **reverse** -engineer **databases** into models, or, **conversely**, models into **databases** ." The forthcoming Designer/2000 release 2.0, currently entering beta, extends the roundtrip engineering capability to a range of **databases**, with native support for Oracle8, Oracle7, Oracle Rdb, Microsoft SQL (structured query language) server, Sybase, and IBM DB2, as well as support for other **databases** through ODBC (Open **Database** Connectivity). In addition, Developer/2000, Visual Basic, and other languages supported by Designer/2000 are...

...0, for code customization directly within Designer. "Previously, developers would often customize an application or **database** in Developer/2000, for instance, after it had already been generated by Designer/2000. But...

...them two different versions," he illustrated. As previously reported in Newsbytes, Oracle's Discoverer, a **database** querying tool introduced in October, also supports multivendor **databases**. Oracle conducted extensive testing on Discoverer in its usability labs, Illingworth asserted, in an earlier...

...provides support for new capabilities in Oracle8 devised for VLDB, including: partitioned data; bitmapped indexing; **star schema** indexing; and support for new data types, such as large objects, according to the senior...

...Designer/2000, he noted, can now be used in conjunction with Oracle's new Object **Database** Designer, a tool for using the object extensions in Oracle8 to build client-side applications incorporating complex objects. "Both products (Object **Database** Designer and Designer/2000 release 2.0)

grew out of our Sedona project," he observed. In future editions of Designer/2000 beyond release 2.0, Oracle plans to offer Object **Database** Designer as part of Designer/2000, while continuing to offer the object tool as a...

7/3,K/2 (Item 1 from file: 275)

DIALOG(R)File 275:Gale Group Computer DB(TM)
(c) 2005 The Gale Group. All rts. reserv.

02283289 SUPPLIER NUMBER: 54206435 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Share and Share Alike.
ELKINS, STEVEN
Intelligent Enterprise, 2, 5, 53(1)
March 30, 1999
LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 1809 LINE COUNT: 00157

... warehouse fully.

At the other end of the pipeline, the Warehouse Designer documents the target **data mart** 's design. You can create target table definitions from scratch or base them on existing tables with fields added, edited, or deleted. Designers can also prototype dimensional **database** designs with the Cube Wizard, a template that walks you through the process of creating a **star schema** complete with the surrogate keys recommended by Ralph Kimball. (Note: The graphical representation of dimensional hierarchies is **backward** -- from bottom to top -- and you cannot modify the resulting prototypes using the wizard.) You can also replicate complete **database** designs, created with leading graphical data modeling tools, in the Informatica Repository via optional PowerPlugs...

7/3,K/3 (Item 2 from file: 275)

DIALOG(R)File 275:Gale Group Computer DB(TM)
(c) 2005 The Gale Group. All rts. reserv.

02201908 SUPPLIER NUMBER: 20945095 (USE FORMAT 7 OR 9 FOR FULL TEXT)
IBM's INTELLIGENT FAMILY.(IBM's business intelligence initiative) (Company Business and Marketing)
Rennhackkamp, Martin
DBMS, v11, n9, p71(1)
August, 1998
ISSN: 1041-5173 LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 3032 LINE COUNT: 00254

... provides links between summary data in the DB2 OLAP Server and detailed data in relational **databases** . The Partitioning Option makes it possible to design and manage multidimensional **databases** (cubes or **star schemas**) that span OLAP applications or servers. The Adjustment Module integrates secure, auditable controls for adjustments into a comprehensive reporting, analysis, and planning environment. The Currency **Conversion** converts financial data using different currency exchange rates. The SQL Interface provides direct access to more than 20 PC and SQL relational **databases** , including Oracle, Sybase, Informix, Microsoft SQL Server, and other middleware packages. Objects are a...

7/3,K/4 (Item 3 from file: 275)

DIALOG(R)File 275:Gale Group Computer DB(TM)
(c) 2005 The Gale Group. All rts. reserv.

02138920 SUPPLIER NUMBER: 20211269 (USE FORMAT 7 OR 9 FOR FULL TEXT)
NCR RELEASES TERADATA UPGRADE, STRUGGLES WITH HIGH-END NT.
Computergram International, n3342, pCGN02050007
Feb 5, 1998
ISSN: 0268-716X LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 424 LINE COUNT: 00035

TEXT:

NCR Corp has taken the wraps off the latest version of its Teradata relational **database**, Teradata 3.0, the product it's banking on to **reverse** the slide in revenues (CI No 3,331). According to NCR, version 3.0 promises...

...two release is due in April, and will feature new join indexes for managing the **star schema**, so data can be dynamically updated from a **data warehouse** to a **data mart**. The April release will also add Year 2000 compliance in the load utilities and query access tools in addition to the central **database** which is already Year 2000 compliant. NCR says the final part of the release, due...

...massively parallel interconnect clustering technology to the Microsoft platform. Keith Prince, European marketing manager for **data warehousing** products, says the company is currently working with Microsoft engineers "to re-engineer parts of...

7/3,K/5 (Item 4 from file: 275)
DIALOG(R)File 275:Gale Group Computer DB(TM)
(c) 2005 The Gale Group. All rts. reserv.

02103364 SUPPLIER NUMBER: 19783157
IBM delivers DB2 Universal Database with parallel processing, new data types. (Object Databases Take the Stage)(Product Announcement)
Krill, Paul
InfoWorld, v19, n38, p41(1)
Sep 22, 1997
DOCUMENT TYPE: Product Announcement ISSN: 0199-6649 LANGUAGE:
English. RECORD TYPE: Abstract

ABSTRACT: IBM ships the DB2 Universal **Database**, which offers support for more data types, parallel processing and **data warehousing**. The product lacks sophisticated object-oriented functions. Among the data types supported are images, text, multimedia and spatial data. The **data warehousing** feature is supported by on-line analytical processing extensions, bit-mapped indexing and support for building a **star schema** warehouse. Early users say the lack of polymorphism and other object technologies is not important...

...the product. Competitor Oracle8 also lacks sophisticated object support, and IBM is offering the SQL **Conversion** Workbench to translate Oracle files to DB2. The company is also developing the Intelligent Miner 2 tool for mining information from **databases**.

7/3,K/6 (Item 5 from file: 275)

DIALOG(R)File 275:Gale Group Computer DB(TM)
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02087149 SUPPLIER NUMBER: 19645870 (USE FORMAT 7 OR 9 FOR FULL TEXT)
AppSource unveils client tool for DB2 OLAP Server. (Wired for OLAP from AppSource Corp) (Company Business and Marketing) (Brief Article)
McKendrick, Joseph
MIDRANGE Systems, v10, n11, p49(1)
July 11, 1997
DOCUMENT TYPE: Brief Article ISSN: 1041-8237 LANGUAGE: English
RECORD TYPE: Fulltext
WORD COUNT: 262 LINE COUNT: 00024

... on the AS/400. Since Essbase/400 "stores data in an optimized multidimensional storage format," **conversion** to a relational **star schema** format under DB2 is not required, says Adrian Marshall, spokesman for AppSource. Essbase/400 is...

...AppSource's tool -- Wired for OLAP -- as part of ShowCase Corp.'s (Rochester, Minn.) Strategy **data warehousing** solution line. The introduction of Essbase/400 also represented "the first time in history any other **database** outside of DB2 has run on the AS/400," says Ken Holec, president and CEO...

7/3,K/7 (Item 6 from file: 275)
DIALOG(R)File 275:Gale Group Computer DB(TM)
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02050382 SUPPLIER NUMBER: 19256575 (USE FORMAT 7 OR 9 FOR FULL TEXT)
SYBASE EASES THE PROGRAMMERS' DATA WAREHOUSE MODELLING WOES WITH S-DESIGNOR RELEASE 6.0.
Computergram International, n3128, pCGN03260009
March 26, 1997
ISSN: 0268-716X LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 410 LINE COUNT: 00036

TEXT:

Sybase Inc is going to make life easier for programmers building **data warehouses** with a new 6.0 release of its S-Designor data modelling suite. Users have typically had to generate **data warehouse** models by hand, or commission custom tools. Sybase claims a new browser-enabled WarehouseArchitect tool, available as part of an S-Designor 6.0 suite or standalone, enables users to **reverse** engineer and import source information, as well as generate data schemas for warehouse **databases**. Following data modelling specialist Logic Works Inc's lead, Sybase is initially supporting the Red Brick Systems Inc **data warehouse**, star and **snowflake schemas**, plus its own Sybase IQ engine. It will add support for Oracle and Essbase **databases** in future. With its link to the Dynamo Web application execution engine in Sybase SQL Server **database**, a new Web module in AppGenerator 6.0 enables HTML pages to be created dynamically...

...only be created using Dynamo, but Sybase expects to add support for other Web-based **database** application engines in future. In addition to PowerBuilder and Visual Basic, the applications generator now...

...Carleton Corp Passport data extraction tools which Sybase already resells as part of its QuickStart **data mart** package. WarehouseArchitect

is priced at \$5,000. The core DataArchitect 6.0 design and generation...

7/3,K/8 (Item 7 from file: 275)

DIALOG(R)File 275:Gale Group Computer DB(TM)

(c) 2005 The Gale Group. All rts. reserv.

02045935 SUPPLIER NUMBER: 19216482 (USE FORMAT 7 OR 9 FOR FULL TEXT)

MICROSTRATEGY: TODAY VIRGINIA, TOMORROW THE WORLD.

Computergram International, n3122, pCGN03180006

March 18, 1997

ISSN: 0268-716X LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 1324 LINE COUNT: 00101

... new Microstrategists have to pass. Even though the bulk of the curriculum is highly technical **database** theory - you'll know the difference between a **star schema** and a snowflake, a sparse aggregate, or even a complex sparselyaggregated multi-snowflake, by the...

...one day become as important as the company Saylor half-unconsciously keeps bringing up in **conversation**, Microsoft. Microstrategy seems to be a company that wants management books written about it one...has a phone, so will users start using any computer to interrogate any and all **databases** through the Web, something he also sometimes calls 'consumer DSS decision support systems'. This will be achieved by large corporations building gigantic **data warehouses**, that will enable us all to access public available data or things like reservations, demographic and credit card **databases** via the personal computer or phone, fasimile, pager or television. Far-fetched? You must be...

...it, he's got the brains, the drive, the intensity, think James Woods talking about **databases**, the chutzpah, to go all the way. After all, as he couldn't bear not...

7/3,K/9 (Item 1 from file: 621)

DIALOG(R)File 621:Gale Group New Prod.Annou.(R)

(c) 2005 The Gale Group. All rts. reserv.

01515064 Supplier Number: 47281234 (USE FORMAT 7 FOR FULLTEXT)

Sybase, Inc. Announces WarehouseNOW Strategy for Comprehensive Enterprise Decision Support

PR Newswire, p0407SFM060

April 7, 1997

Language: English Record Type: Fulltext

Document Type: Newswire; Trade

Word Count: 1119

... family of tools announced on March 24, 1997. WarehouseArchitect is used to design and build **data warehouses** and **data marts** and maintains a map between source information and warehouse data for use in data cleansing, extraction and end-user query. With this tool designers can **reverse** -engineer and import source information and generate schemas for warehouse-optimized **databases** such as Sybase IQ. As a result WarehouseArchitect works with Sybase IQ 11.2 to provide faster **data mart** design and deployment. WarehouseArchitect will also provide support for dimensional modeling including star and **snowflake schemas**, aggregation, partitioning, summarization and dimensional hierarchies.

Data Movement Products Extended To Support WarehouseNOW
Sybase's...

7/3,K/10 (Item 2 from file: 621)

DIALOG(R)File 621:Gale Group New Prod.Annou.(R)
(c) 2005 The Gale Group. All rts. reserv.

01508557 Supplier Number: 47238607 (USE FORMAT 7 FOR FULLTEXT)
Sybase, Inc. Unveils Powersoft S-Designor 6.0
PR Newswire, p0324NEM022
March 24, 1997
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 1178

... extend the toolset's capabilities throughout an organization.
Highlights include:

-- WarehouseArchitect -- WarehouseArchitect allows designers to
reverse - engineer and import source information and generate schemas for
warehouse- optimized **databases** , such as Sybase IQ(TM) and Red Brick
Warehouse, in addition to traditional DBMSs. WarehouseArchitect also
provides support for dimensional modeling including star and **snowflake**
schemas , aggregation, partitioning, summarization and dimensional
hierarchies. Additionally, this new module maintains a map between source
...

7/3,K/11 (Item 3 from file: 621)

DIALOG(R)File 621:Gale Group New Prod.Annou.(R)
(c) 2005 The Gale Group. All rts. reserv.

01311380 Supplier Number: 45869651 (USE FORMAT 7 FOR FULLTEXT)
**SelectStar Ships StarTrieve Version 1.5; Relational OLAP Tool Offers Power
And Simplicity.**
Business Wire, p10191154
Oct 19, 1995
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 774

... proprietary OLAP solutions, StarTrieve 1.5 does not require an
additional server or pre-aggregated **database** . Instead, it maintains a
simplified, multi- dimensional representation of data within an existing
relational **database** . This representation-or metadata-provides users with
considerable flexibility to analyze any information within relational
databases or data **warehouses** , without **conversion** into pre-aggregated
tables or datacubes. StarTrieve also supports the **star schema** which is
often used for decision support with relational **databases** . Use of
standard **databases** , middleware and schemas ensures that StarTrieve has
broad applicability to organizational requirements.

Maintainability - StarTrieve Empowers...

7/3,K/12 (Item 1 from file: 636)

DIALOG(R)File 636:Gale Group Newsletter DB(TM)
(c) 2005 The Gale Group. All rts. reserv.

03913972 Supplier Number: 50125592 (USE FORMAT 7 FOR FULLTEXT)
-ORACLE: Oracle tools offer immediate and integrated support for Oracle8
M2 Presswire, pN/A
July 2, 1998
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 990

(USE FORMAT 7 FOR FULLTEXT)

TEXT:

...and Oracle8 for the last year to quickly and effectively build, manage and deploy their **database** applications." The tools that support Oracle8 include Oracle Enterprise Developer Suite, Oracle Designer 2.1...

...Jdeveloper Suite. Enterprise Developer Suite Release 2.1 is Oracle's premier toolset for building **database** applications. It offers corporations, SIs, ISVs and VARs integrated, cutting-edge development technology that combines...

...Oracle Designer 2.1, Oracle Developer 2.1, Oracle Application Server 3.0.1, Oracle **database** server version 7.3.4 and 8.0.4 and a one year membership to...

...to visually model business processes. The business processes are then refined into models of the **database** and application objects. Once these models are complete, the application developer can automatically generate 100...

...any changes need to be made to the application after generation, they can be easily **reverse** -engineered back into the model. Oracle Designer 2.1 provides the most complete support for...

...offers enterprise application developers the fastest and easiest way to access SQL in the Oracle **database**. In addition, Developer 2.1 takes advantage of a broad range of Oracle8's transaction...

...Oracle8's integrated advanced queuing capabilities. Developer 2.1 also provides unrivalled support for Oracle8 **data warehousing** features, including parallel bitmapped **star query** technologies and partitioning. Oracle Express online analytical processing (OLAP) products provide analytical front ends to the powerful and scalable **data warehousing** capabilities of Oracle8. Express Server delivers market-leading decision support capabilities that include forecasting, what...
...financial modelling. A dynamic link between the Express multidimensional calculation engine and the Oracle8 relational **data warehouse** combines high-performance OLAP with sophisticated data management capabilities, allowing users to focus on solving...

...reports on corporate intranets or the World Wide Web. To address the specific requirements of **data warehousing** applications, Discoverer 3.1 directly leverages the rich variety of query processing techniques (i.e. bitmapped indexes, hash joins), sophisticated query optimisations (i.e. support for "star" and " **snowflake** " **schemas**) and the scalable architecture of Oracle8. Oracle Reports 3.0 is Oracle's powerful and...

...intranets and the World Wide Web. Version 3.0 provides enterprise-strength, multi tier Web **database** publishing and greater accessibility to corporate **database** information. Jdeveloper Suite enables

developers to use a single, integrated set of products to build and deploy sophisticated enterprise **database** applications using Java. Businesses benefit from server-deployed applications, as the applications become more accessible...

...end user. JDeveloper Suite contains the following components: JDeveloper, Oracle Application Server 4.0, Oracle8 **database** server and Symantec's Visual Page HTML editor. Additionally, developers receive a one-year membership...

...provides huge productivity benefits for application developers, allowing them to write less code to access **database** information. Oracle8, which began shipping last June, continues to lead the market in **database** performance, scalability, reliability and ease-of-use on all platforms. Oracle8 is designed to support...

, ...its first year, Oracle8 contributed to Oracle's lead both in the NT and UNIX **database** segments. Oracle Corporation is the world's leading supplier of software for information management, and...

...second largest software company. With annual revenues of \$7.1 billion, the company offers its **database**, application server, tools and application products, along with related consulting, education and support

7/3,K/13 (Item 2 from file: 636)

DIALOG(R)File 636:Gale Group Newsletter DB(TM)

(c) 2005 The Gale Group. All rts. reserv.

03064010 Supplier Number: 46264399 (USE FORMAT 7 FOR FULLTEXT)

THE DATA WAREHOUSE: KEEP IT SIMPLE, STUPID (PART 2)

Software Futures, v5, n6, pN/A

April 1, 1996

Language: English Record Type: Fulltext

Document Type: Newsletter; Refereed; Trade

Word Count: 2656

... support for the sales cycle and typically leads the business needs analysis phase of any **data warehousing** methodology work. She is also involved in the design phase by creating the logic data model, the physical data model and the design of any **star -join schemas** required, and then helps in the building of a **data warehouse** in the construction phase by leading the data **conversion** team from the source-to-target mapping specifications to the loading of the physical **database**. In addition, she is the lead Master User of the ETI*Extract tool for the...

7/3,K/14 (Item 1 from file: 16)

DIALOG(R)File 16:Gale Group PROMT(R)

(c) 2005 The Gale Group. All rts. reserv.

04983843 Supplier Number: 47321129 (USE FORMAT 7 FOR FULLTEXT)

Tools of the Warehousing Trade

Craig, Robert

ENT, p032

April 23, 1997

Language: English Record Type: Fulltext

Document Type: Magazine/Journal; Professional

Word Count: 763

... Loading and propagation. n Databases. n Query and reporting.

Design and modeling tools assist the **database** designer in defining the data structures used by the warehouse. There are three major types of **databases** used in warehousing: relational, multidimensional and hybrid. Most enterprises use a **star schema** for a relational **database** warehouse. Both ERwin from Logic Works (Princeton, N.J.) and S-Designor from Powersoft (Concord, Mass.) can **reverse** -engineer existing **databases** and generate target **databases** using a **star schema** . The tool should be able to understand the logical relationships between the various data, and help with both the logical and physical design of the target **database** . Unfortunately, there is a dearth of design tools that will work with the other nonrelational **databases** , and you are left to the tender mercies of the **database** vendor.

Perhaps the most complex, demanding warehousing phase is the extract, transform, move, load (ETML...

Set	Items	Description
S1	2622	REVERS? OR BACKWARD? OR INVERS? OR CONVERS?
S2	10	(STAR OR SNOWFLAKE OR SNOW() FLAKE) (1W) (SCHEMA? OR SCHEME? - OR QUERY OR QUERIES)
S3	10069	DATABASE? OR DATABANK? DATAWAREHOUS? OR DATA() (WAREHOUS? OR MART? ? OR STORE? ? OR BASE OR BASES OR BANK? ? OR SYSTEM?). - OR MDDB OR OODB OR DBMS
S4	0	S1(S)S2
S5	1	S1 AND S2

? show files
File 256:TecInfoSource 82-2005/Jun
(c) 2005 Info.Sources Inc

5/3,K/1

DIALOG(R)File 256:TecInfoSource

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00118340 DOCUMENT TYPE: Review

PRODUCT NAMES: DataShark 3.1 (711993); BI Blueprint (768219); Extract
Packaged Application Connection Kit (768227); PureIntegrate 5.0 (768235)

TITLE: Tools keep data on the move

AUTHOR: Hammond, Mark

SOURCE: PC Week, v16 n31 p84(1) Aug 2, 1999

ISSN: 0740-1604

RECORD TYPE: Review

REVIEW TYPE: Product Analysis

GRADE: Product Analysis, No Rating

REVISION DATE: 20040130

...when users want, for example, to transform data from online transaction processing (OLTP) to a **star schema** for decision support.

DESCRIPTORS: Data Warehouses; Decision Support Systems; Enterprise
Resource Planning; File **Conversion** ; File Transfer; Information
Retrieval

Set	Items	Description
S1	84960	REVERS? OR BACKWARD? OR INVERS? OR CONVERS?
S2	49	(STAR OR SNOWFLAKE OR SNOW()FLAKE) (1W) (SCHEMA? OR SCHEME? - OR QUERY OR QUERIES)
S3	115576	DATABASE? OR DATABANK? DATAWAREHOUS? OR DATA() (WAREHOUS? OR MART? ? OR STORE? ? OR BASE OR BASES OR BANK? ? OR SYSTEM?) - OR MDDB OR OODB OR DBMS
S4	0	S1(S)S2
S5	8	S1 AND S2
S6	8	S5 AND S3
S7	6	RD (unique items)

? show files

File 647:CMP Computer Fulltext 1988-2005/Jun W4
(c) 2005 CMP Media, LLC

File 674:Computer News Fulltext 1989-2005/Jul W2
(c) 2005 IDG Communications

File 370:Science 1996-1999/Jul W3
(c) 1999 AAAS

File 553:Wilson Bus. Abs. FullText 1982-2004/Dec
(c) 2005 The HW Wilson Co

7/3,K/1 (Item 1 from file: 647)
DIALOG(R)File 647:CMP Computer Fulltext
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01247238 CMP ACCESSION NUMBER: NWC20011217S0014

**DATA MANAGEMENT & STORAGE TECHNOLOGY - Even As The Economy Remains In The
Slow Lane, Innovations Are Speeding Up For The Products No Business
Can Do Without.**

Steven J. Schuchart Jr.
NETWORK COMPUTING, 2001, n 1226, PG77
PUBLICATION DATE: 011217
JOURNAL CODE: NWC LANGUAGE: English
RECORD TYPE: Fulltext
SECTION HEADING: THE SURVIVOR'S GUIDE TO 2002
WORD COUNT: 2567

... develop and deploy a 10-Gb version of Fibre Channel in time to stem
the **conversion** tide to Ethernet. Fibre Channel must have a 10-Gb product
available within two quarters...

...tapes without Quantum's blessing or royalties-will drive down costs in
the next year.

Databases

In many respects, the **database** market is like the new-home-buying
market. Like a home, a **database** is a necessary thing, and even in
economic downturns, necessary things sell. **Databases** are vital
technology components that build business. **Databases** feed Web-based
dynamic content and facilitate page updates; they reuse data across
multiple applications and reduce redundancy; they also store in **data
warehouses** information that's culled, mined and aggregated by business
applications and knowledge-discovery tools.

Yes, this market continued growing in 2000, albeit at a slower
pace. The **DBMS** market grew 10 percent in 2000, down from 18-percent
growth in 1999 and 12...

...percent, 30 percent and 15 percent of the market, respectively,
totaling 79 percent of the **DBMS** market, according to Dataquest's report.
During the past year, each of the big three...

...controversial pricing scheme but dropped it after a backlash from
licensees.

IBM bought Informix's **database** products in July, after a dip in
Informix's market share. For now, IBM is maintaining separate product
lines with the Informix OLTP **database** server and Red Brick line. We'll

have to wait and see what IBM will...

...MySQL at the back end. Some have complained about PostgreSQL's speed
and MySQL's **database** functionality, but their price is right. Within the
past year, each has made improvements where needed.

Data Warehousing

In today's business model, information is everything-and

information comes from data. You have...

...on your data, you can make informed decisions for your business. Behold the promise of **data warehousing**. But do you really need a **data warehouse** ?

If your business needs are met by historical reports from a TPS (transaction processing system...

...query and reporting tools against a variety of data resources in multiple data formats, a **data warehouse** is at least worth investigating.

Designing, building and maintaining a **data warehouse** can be costly. Make sure to keep focused so your **data warehouse** is solving the problems you want it to; otherwise it's just a time and money pit. And remember, **data - warehouse** benefits won't show up overnight. There will be some trial and error with business...

...have to revisit the underlying logic when your needs or processes change.

There are two **data - warehousing** schools of thought. The first is that you must design your **data warehouse** for the entire enterprise. The second suggests you can build pieces of your **data warehouse** as **data marts**. Proponents of each tend to take issue with the other.

With a **data mart**, you can focus on a single business process or department of your business. This way you can investigate the technical benefits of this system while watching it relieve your TPS **databases**. You'll also get to see the benefits gained by your information-gathering efforts and decision-making processes.

If it's a success, you can build multiple **data marts** or go for the whole **data warehouse**. With multiple marts, use some shared design principles and a common **database** staging area for ELS (electronic library system) functions. That way, you can use an incremental approach to building focused **data marts** and aggregate them using a common set of data definitions.

Some **data - warehouse** proponents say **data marts** make stovepipe solutions that don't scale to the enterprise, thereby depriving you of the **data warehouse**'s true benefits. If you have the resources to engage an enterprisewide **data warehouse**, design and implement with common data structures and model data to speed up queries and reports- for example, by using a **star schema**.

Bitmapped indexes will also speed analytical processing but may use up as much space as the warehouse itself. You'll need plenty of real estate for a large back-end **data warehouse**. In the end, your warehouse should provide information on your customers' buying habits, let you personalize your Web site and target your marketing efforts.

Whatever you decide, **data warehouses** are the foundation of applications that make sense of large amounts of data. We'll...

7/3,K/2 (Item 2 from file: 647)
DIALOG(R)File 647:CMP Computer Fulltext
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01085749 CMP ACCESSION NUMBER: IWK19960325S0052

Technology Tutorial - Boost Warehouse Performance

Neil Raden

INFORMATIONWEEK, 1996, n 572, PG77

PUBLICATION DATE: 960325

JOURNAL CODE: IWK LANGUAGE: English

RECORD TYPE: Fulltext

SECTION HEADING: OpenLabs

WORD COUNT: 2689

... covered two key technologies to look for in order to maximize the performance of your **data warehouse** : query optimization and advanced indexing. This week, I examine two more performance-enhancing technologies: core engine optimizations and parallelism. u Several areas of a **database** engine can be optimized for decision-support performance, including support for the multidimensional data model, load processing, and calculation and query processing. Clearly, **database** vendors must provide functionality that is specific to decision support or online analytical processing (OLAP...

...is how much functionality is needed. After all, the relational/OLAP tools, which augment relational **databases** by providing OLAP capabilities, client interfaces, and metadata tools, perform very well for **data warehouses** . The multidimensional **databases** also provide OLAP functionality and duplicate many of the data management functions of relational **databases** .

Organizations that use relational **databases** to house their critical operational systems, assuming that it's more cost-effective to support...

...technologies, have a built-in bias to standardize on one product for both their operational **database** and **data warehouse** . Though this thinking is easy to refute, its intuitive appeal often suppresses any argument. The net effect is that the major relational **database** vendors are being asked to add technologies that specifically support **data warehousing** , and the vendors now feel a compelling reason to instill this functionality in their products. They're doing just that, albeit slowly. Core **database** engine optimizations and parallelism are two areas where they need to do the most work.

Query optimizers that work with the **star schema** (a multidimensional data model expressed in relational tables) and indexing that exploits that model are...

...operations, such as aggregations, calculations, and time intelligence, that are not supported by the relational **database** engines.

Aggregation

Since almost every query asks for some summarized data, aggregation , which is pre-summarized data, is the single most important technique for improving performance in **data warehouses** .

The success of your aggregation strategy depends on selecting the right combinations of aggregates, total **database** size, and relative query cost (see chart, p. 80). Note that the first few aggregates increase the size of the **database** dramatically, but substantially improve query response time. But additional aggregations increase the **database** size without delivering better query performance. With

experimentation, you'll find the right number of...

...users need to rewrite queries to take advantage of the new aggregations. What all the **databases** lack, unfortunately, is automatic aggregate optimization. Currently, aggregate optimization is fairly basic and handled almost...

...incorporate the functionality of its newly acquired MetaCube in a future release of the Informix **database**. This will provide an aggregate advisor that suggests creating aggregate tables based on the schema...
...simplify the architecture, but without native support for the calculations, performance suffers.

Once again, the **databases** designed for **data warehousing** address most of these issues through extensions to SQL. But most organizations prefer a general...

...expect to see some progress in this area in the next few years.

Almost every **data warehouse** that uses dimensions has time as one of those dimensions. In fact, time is one...

...support applications and since standard SQL is limited to date arithmetic and date comparison, the **database** used for a **data warehouse** needs to be able to perform more complicated time calculations, including time aggregation, calendar **conversions**, time transformations, and automatic **conversion** in calculations with data having different periodicities (for example, comparing daily sales to the monthly...

...year is one day longer than 52 weeks (two days longer in leap years). Calendar **conversions** and time transformations can solve this problem by creating core functionality to deal with these...

...time periods for the data elements in a model introduce yet another complexity. Using relational **databases** and SQL to perform calculations with different values adds complexity to the design and the...deal with time-related complexities.

Red Brick Warehouse and Sybase IQ are examples of relational **databases** that provide specialized solutions for decision-support applications. Red Brick makes no apologies for its lack of conventional transaction processing features; it concentrates all its energies on **data warehousing**. Sybase chose a completely different tool, Sybase IQ, and integrated it into the Sybase catalog. Informix, Oracle, and IBM chose to add **data warehousing** capabilities to their **database** engines. This creates some difficulties in integrating those features into a **database** designed for transaction processing.

For example, in transaction processing, the data being updated is locked to provide a consistent view. In **data warehousing**, locking is not necessary because the **database** is typically read-only.

Also in transaction processing, to ensure accuracy in the **database**, updates are applied to a temporary file; only when the transaction is complete are they applied to the operational **database** and the lock released. This process creates a great deal of overhead, including transaction logs, rollback logs, and more--none of which is necessary in a **data warehouse**.

As a first step, the **databases** need to selectively relax some of these constraints to provide better performance. The problem: these features are so pervasive in the **database** engine that disengaging some of them may require redesigning the whole engine.

If you extrapolate...

is such a broad area that I can cover only some of the basics here...

...scaling up (doing more work in the same amount of time). In most cases, a **data warehouse** needs both types of performance gains over its life cycle.

There are various flavors of...

...the specific parallelism used will soon become transparent to the purchaser.

Though all the major **database** vendors support parallelism to a certain extent, their implementations are imperfect and evolving; the technology...

...down into subtasks which are executed in parallel. This is called intraquery parallelism. Not every **database** supports intraquery parallelism, especially in shared-memory ...input to another.

This is not a given in most systems. Still, the more the **database** engine can overlap the three processes, the faster the query will run.

A third approach...

...partition the query and allocate separate processes (which can be operating-system processes, threads, or **database** threads) to physical partitions of the tables.

There are variations in this approach, too-especially...

...to do than the others to eliminate almost all the benefit from the partitioning scheme.

Data warehouse load processes are good candidates for parallelism, and most **databases** have made excellent progress in parallelizing the loading of data and creation of indexes. Referential...

...still need work.

Closing The Gap

To be successful in a field mastered by multidimensional **databases** and relational/OLAP servers, the relational **database** vendors need to perform some fast gap analysis and beef up their products accordingly. Unfortunately...

...task.

Neil Raden is president and principal consultant of Archer Decision Sciences Inc., an international **data warehousing** consulting firm in Santa Barbara, Calif., and New York. He can be reached at nraden...

7/3,K/3 (Item 1 from file: 553)

DIALOG(R)File 553:Wilson Bus. Abs. FullText

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04549147 H.W. WILSON RECORD NUMBER: BWBA01049147 (USE FORMAT 7 FOR FULLTEXT)

Data warehousing stages of growth.

Watson, Hugh

Ariyachandra, Thilini; Matyska, Robert J., Jr

Information Systems Management v. 18 no3 (Summer 2001) p. 42-50

LANGUAGE: English

WORD COUNT: 5652

(USE FORMAT 7 FOR FULLTEXT)

Data warehousing stages of growth.

...ABSTRACT: over time, in sequential, predictable ways. Eight experts participated in a study that identified three **data warehousing** stages of growth -- (1) initiation, (2) growth, and (3) maturity -- and the variables that define...

...users, impact on users' skills and jobs, applications, costs and benefits, and organizational impacts. The **data warehousing** stages of growth model is useful in understanding and predicting how organizations' **data warehouses** change. The experts also suggested how recent developments in **data warehousing** are affecting the stages. Recommendations are given for managing the progression through stages. Reprinted by...

TEXT:

TEN YEARS AGO, **DATA WAREHOUSING** was largely unknown. Today, many companies are receiving considerable business value from their warehousing efforts...

...agreement with regulators. A new senior management team developed a customer intimacy strategy with a **data warehouse** at the heart of the strategy. Using warehouse data, FAC was able to determine the...

...service offerings; and redesign their distribution channels to increase profitability and better meet customers' needs. **Data warehousing** helped FAC to become a profitable, innovative leader in the financial services industry.

* Owens & Minor...

...In order to identify cost savings opportunities in their large and complex supply chain, a **data warehouse** was built to analyze sales, inventory, and accounts receivable data, resulting in millions of dollars ...

...places. Over 16 million appliances a year are sold. A major use of Whirlpool's **data warehouse** is to track and analyze everything associated with the appliances that they manufacture, starting with...

...of the parts that they are supplying.

In these and other companies, the benefits from **data warehousing** did not occur all at once. Typically, there was a specific business problem that motivated...

...an expansion of the warehousing initiative, with more data, applications, and users. Experts say that **data warehousing** is "a journey, not a destination" in order to emphasize its constantly evolving nature. This...

...be addressed if the warehouse is to live up to its potential.

Even when a **data warehouse** reaches maturity, it continues to change. It becomes the foundation for organization-wide reporting systems ...

...and customer relationship management.

In this article, we present a stages of growth model for **data warehousing**. How a warehouse goes through initiation, growth, and maturity stages and the variables (i.e. ...

...each stage are described. The article also discusses where leading

...proponents. (FN15) Exhibit 3 lists some of the reservations that Bill Inmon has with the **data mart** strategy. Actions that can be taken to ameliorate the potential negative aspects of the **data mart** approach will be described. If followed, the actions provide a middle ground between the two...

...of the data is clear. In order to meet this need, the building of a **data mart** is approved (as opposed to a larger **data warehouse**). When the cost of the mart is relatively modest and it has a strong business sponsor, funding for the project may come from the business unit. The **data mart** stores only a single or a few subject areas, and the amount of **data stored** is relatively small. The data are stored in a multidimensional format (e.g., a **star schema**), so that it matches the way that users think (e.g., customers, products). Given its newness and time pressures to roll out the **data mart** quickly, populating the mart (via data extraction, transformation, and loading processes) is ad hoc and evolving. To some extent, the **data mart** is a decision support experiment. The in-house IT personnel assigned to the project have experience with **databases**, but are typically new to **data warehousing**. As a result, it is common to bring in consultants to help with the work...

...transfer. The learning curve for in-house personnel is steep. The initial users of the **data mart** are analysts in the unit that requested the mart. They are typically more computer literate...

...the availability of more reliable, consistent, integrated, and timely data. Although the cost of a **data mart** is less than for a warehouse, it typically runs into at least six figures when...

...responsible for building the mart; consequently, the organizational impact is local.

GROWTH STAGE

If the **data mart** proves successful, it provides a "proof of concept" for **data warehousing**. This typically leads to additional initiatives, such as the expansion of the initial **data mart** and the demand for additional **data marts**. The building of more **data marts** marks the beginning of the growth stage. The company is at a dangerous point. It cannot allow **data marts** to be developed independently. To do so only perpetuates the "silos of information" problem that...

...common in organizations today. There must be an overall plan and architecture for the larger **data warehousing** initiative. Some of the issues that must be addressed include what are the "official" data sources for the **data marts**, what data definitions apply across the **data marts**, and what common dimensions (e.g., product, location, time) are used with the various **data marts**. The production environment is still somewhat unstable in this stage. Considerable effort is going into expanding the number of **data marts** and serving a growing user base, so there is little time for formally documenting extraction, transformation, and loading procedures or putting **data warehouse** performance measurement systems in place. The company's internal **data warehousing** staff has moved up the learning curve and most of the consultants and vendors are...

...Consultants may still be brought in, but they typically provide highly

* The need for greater...

DESCRIPTORS:

Data warehouses --...

...Evaluation; **Data marts** --

7/3,K/4 (Item 2 from file: 553)

DIALOG(R)File 553:Wilson Bus. Abs. FullText

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04098080 H.W. WILSON RECORD NUMBER: BWBA99098080 (USE FORMAT 7 FOR FULLTEXT)

Technology: FS/TEC wrap-up.

AUGMENTED TITLE: special report

Nation's Restaurant News v. 33 no47 (Nov. 22 1999) p. 41-52

LANGUAGE: English

WORD COUNT: 6961

(USE FORMAT 7 FOR FULLTEXT)

TEXT:

... Partner Systems Inc., co-creator of the Internet's 70,000 item PROFILE foodservice product **database**.

EFR, or Efficient Foodservice Response, is an initiative designed to remove an estimated \$14 billion...practice of leaving tickets open after printing.

Adding to the distractions inherent in a POS **conversion** was Luby's simultaneous rollout of SAP's R/3 Enterprise Resource Planning suite, or...

...1997. It uses Dell Pentium-based personal computers, Okidata laser printers, Microsoft Access for the **data base**, the Visual Basic programming language and Xcellenet for polling and communications with headquarters.

Keller said...chain "wanted a solution that was as much off the shelf as possible."

The resulting **data warehouse** employs SQL Server 7.1 with **Star Schema Data Mart**. Point of sale information is fed into the system daily by way of Xcellenet polling...

...000 payroll transactions and 1.5 million invoices. The data flow into a Microsoft Access **database** and are transformed into tables using Impromptu.

In creating its data-mining system, Red Robin...

...well. It's a tool for management to use in item prices and content."

The **data warehouse** also is proving useful to Red Robin's marketing machine.

"We are now able to...

...instant analyses of how promotions are being used and sold," Jenkins said.

Jakoby said the **data warehouse** has been moved from Red Robin's management information systems department to the accounting division...reporting," he explained.

Jenkins said Red Robin is looking to leverage the power of the **data warehouse** by making some of its tools available to field-level managers

via the Internet. However...

7/3,K/5 (Item 3 from file: 553)
DIALOG(R)File 553:Wilson Bus. Abs. FullText
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04024450 H.W. WILSON RECORD NUMBER: BWBA99024450 (USE FORMAT 7 FOR FULLTEXT)

The new face of data warehousing (computer file).
Watterson, Karen
Datamation (Online) (Feb. 1999)
LANGUAGE: English
WORD COUNT: 3076

(USE FORMAT 7 FOR FULLTEXT)

The new face of data warehousing (computer file).

TEXT:

... found social security numbers and alien ID numbers in the 'fishing' field," recalls Ralph Nordstrom, **data warehouse** architect for the Automobile Club of Southern California (ACSC is the largest U.S. affiliate ...

...problems that plague the early phase--or ETL (extract, transform, and load) tasks--of any **data warehouse** project. In response to these issues, today's **data warehouse** implementation teams are looking for tools that tend to be fast, industry-specific, function-specific...
...other typical data quality problems--and ACSC began looking for a way to solve the **data warehouse** design and data quality beasts.

Don't call it artificial intelligence

Nordstrom credits colleague Francine Burick, the auto club's **data warehouse** coordinator in charge of the end-user information access side of things, with discovering Evoke Software Corp.'s Migration Architect at a **data warehousing** conference. Typical of today's **data warehousing** tools, Evoke does upfront profiling and mapping using data design rules that Carleton's Passport...

...performs a combination of automated discovery and interactive analysis in order to generate a normalized **data warehouse** with atomic data. "It got us 95[percent] there, right out of the box," according...

...mid-year 1999. It will probably also add Teradata and IMS to the list of **databases** currently supported (Oracle, Informix, Sybase, and DB2). In that version, customers will be able to use a traditional relational **database** for Migration Architect's datastore. Migration Architect 2.0 currently uses a proprietary data structure...1997 sales report," he recalls. "We were the knights in shining armor."

ACSC's new **data warehouse** now houses atomic data, while its datamarts are for sales and customer service. Nordstrom is...

...hub and spoke architecture. And rightly so, as the industry-accepted architecture for "good" enterprise **data warehouses** and dependent datamarts, this type of architecture works well. Migration Architect profiles and maps ACSC's data while Carleton's Passport populates both its enterprise **data warehouse**, residing in DB2 on the mainframe, and its sales and POS datamarts. These datamarts, which...

...records of member "transactions" such as ordering maps and "TripTiks,"

are in Oracle 7.3 **star schema databases** running under HP-UX.
(Prepared by AAA for its members, TripTiks are customized route maps...

...staffers estimated it would take between three and four staff years to design a normalized **database** from data residing in four VSAM files and 58 different record types. Using Migration Architect...

...and Minerals Record System (ALMRS), was bogged down in a quagmire of horrendously complex data **conversions**.

ALMRS, which had been initiated almost a decade ago and contracted to Computer Sciences Corp...

...not going to be brought into Y2K compliance. The data, residing in four legacy system **databases**, contained crucial "patents"--records of public land being transferred into private hands--dating back to...

...products and trends

Evoke isn't the only innovative product or bellwether trend in the **data warehousing** market today. Amit Desai, a cofounder of Anubis Inc., sells commercially a **data warehouse** design tool that he and his partners had developed for their consulting clients. Like Nordstrom...

...A tool for graphical, dimensional model construction (full graphical interface, schema generation into star or **snowflake schema**, plus optimization for either performance or space), Constructa also checks overall design integrity. Users can define standards and conventions and have Constructa automatically apply these via inheritance. **Data warehousing** vendors like Informatica Corp. and Microstrategy Inc. have already recognized the value proposition of Constructa...

...Ovum Ltd., a London-based research firm, observes that, in addition to market consolidation among **data warehousing** vendors, the other main trend is an increased acknowledgment that metadata integration and repositories are...

...of innovative integration: The idea, according to Wells, is that now that the decision support/ **data warehousing** market and technologies have matured, users can buy "prebuilt" applications to perform tasks such as...

...This is an immensely appealing message, notes Wells, especially for users who are nervous about **data warehousing** and/or have already been "bruised and bloodied" with unsuccessful **data warehousing** or datamart projects. In the meantime, the packaged applications market (Baan Co., SAP, etc.) has campaign management, as extensions of the **data warehouse**. These new applications are part of a controlled, closed-loop system (as opposed to being standalone, "stovepipe" applications). **Data warehouses** have moved from being read-only storage facilities to monitoring the business, and they are...

...or offering specific functionality. NCR Corp., for example, offers industry-specific versions of its RightStart **data warehouse** package with bundles "pretuned" for retail, financial services, and data communications, and IBM has similar...

...focused marketing and/or CRM (customer relationship management) products at the recent National Center for **Database Marketing** Show.

What the tea leaves say

Companies implementing **data warehousing** solutions are at last

finding a new crop of tools capable of migrating existing data...

...packaged analytical applications, as well as application-integration products, are coming to the forefront of **data warehousing**.

Indeed, it's a very exciting time in the world of **data warehousing**. This taste of some of the innovative products and trends shows that the tea leaves...

...watterson@msn.com) is an independent San Diego-based writer and consultant specializing in **database** design and **data warehousing** issues. She has written several books, including Visual Basic **Database** Programming and Client/Server Technology for Managers, and is completing one on Microsoft's SQL Server 7.0.

Photo/Graphic: [Chart not available] As **data warehouses** move from being storage facilities to monitoring the business, the market for **data - warehouse** software and tools will grow into the next century, according to GartnerGroup projections.

What the analysts say...
The Standish Group, a Dennis, Mass.-based research firm, says that 15,000 **data warehouse** projects with budgets greater than \$3 million will begin in 1999 at a cost of...

...research firm International Data Corp. expects firms will be spending \$24 billion on the total **data warehousing** market by 2001.

Evolving into knowledge management
John Ladley, senior program director with the META Group and VP of Knowledge InterSpace, made two presentations at the recent DCI **Data Warehouse** and Knowledge Management symposium held in Phoenix this past December. The title of one, "Life After the **Data Warehouse** : Exploiting the Information Cycle" conveys the gist of Ladley's perceptive message: second generation **data warehouses** are being designed to be part of a dynamic information supply chain (ISC), and the...

...to the process of information asset creation, capture, organization, access, and use. Information assets include **databases**, documents, and, most importantly, the uncaptured, tacit expertise and experience resident in individual workers..."), but Ladley offered a useful taxonomy. There are five main routes by which **data warehousing** develops into KM:

Process Route: Create improved cycle times, lower costs, and improve quality.

Product...
...as CEO until 1996 and has recently founded a new data integration venture, IDS Integrated **Data Systems** (www.ids-corp.com).

In 1997, Lacy Edwards became CEO of DBStar, which was subsequently...

DESCRIPTORS:

Data warehouses

7/3,K/6 (Item 4 from file: 553)
DIALOG(R)File 553:Wilson Bus. Abs. FullText
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03519082 H.W. WILSON RECORD NUMBER: BWBA97019082 (USE FORMAT 7 FOR

FULLTEXT)

Rdb/VMS: developing the data warehouse {book review}.

Inmon, W. H

Kelley, C; Gray, Paul reviewer

Information Systems Management (Inf Syst Manage) v. 14 (Winter '97) p. 82-6

LANGUAGE: English

WORD COUNT: 3260

(USE FORMAT 7 FOR FULLTEXT)

Rdb/VMS: developing the data warehouse {book review}.

TEXT:

... H. Inmon and C. Kelley. Wellesley MA: QED Publishing Group, 1993, 225 pp.

* Building the **Data Warehouse**

W.H. Inmon. New York: John Wiley & Sons, 1993, 298 pp.

* Using the **Data Warehouse**

W.H. Inmon and R.D. Hackathorn. New York: John Wiley & Sons, 1994, 285 pp.

* Building a **Data Warehouse** for Decision Support

V. Poe. Upper Saddle River NJ: Prentice Hall PTR, 1996, 210 pp.

* The **Data Warehouse Toolkit: Practical Techniques for Building Dimensional Data Warehouses**

R. Kimball. New York: John Wiley & Sons, 1996, 388 pp.

THE YEAR 1996 MAY BE remembered as the year of the **data warehouse**. It was a year when computer trade journals rarely went to press without at least one story, white paper, or new product announcement on the subject.

Data warehouses are an integral part of a set of recent and interrelated developments in data management...

...systems (EISs), and decision support systems (DSSs). These developments include online analytical processing (OLAP), multidimensional **data bases**, data mining, and document management. Although such names as **data warehousing** and data mining are unfortunate in the white-collar worlds of computing and executive decision...

...CONFLUENCE

Two niche software technologies that were both in trouble alone--executive information systems and **data warehousing**--are converging in the marketplace. For about 10 years, EISs had cornered the market on elegant front ends suitable for executive use. Most of them, however, used proprietary **data bases** that required an army of people for updating. Furthermore, although the range of information provided often drew initial raves, it quickly became stale as executives absorbed what was in the **data bases** and hungered for more. From an EIS vendor's point of view, the market saturated...

...distinguished EISs could now be produced at much lower cost with various visual programming languages.

Data warehouses also had problems. Whereas online transaction processing (OLTP) systems were designed to keep records of the current state of a business, **data warehouses** contained cleaned-up, historical time-series data. Because they kept information about long time periods, **data warehouses** required large amounts of storage, reaching toward the terabyte range. Although an interesting invention, **data warehouses** lacked a killer application that justified the large investment they required.

THE DATA BASE CONTROVERSY

Somehow, a couple of years ago, the **data warehouse** and the EIS people found one another, with the **data warehouses** obtaining their needed application and the EIS people receiving a new breath of life from... They were helped along by a seminal article coauthored by an early leader in relational **data bases**, E.F. Codd, who asserted that data should be used for online analytic processing and that multidimensional **data bases** would replace relational **data bases** for this purpose. (FN1) **Data warehouses** became a growth industry, with most Fortune 500 firms committing to creating one.

Data warehouses are still a developing field. A major controversy concerning them comes from the competition between...

...refer to the way the multidimensional data is stored and indicate, respectively, relational and multidimensional **data bases**. Whereas Codd called for the use of multidimensional **data bases**, the major **data warehouse** providers' stock in trade was inherently two-dimensional relational **data bases** used for transaction processing. These firms proceeded to work on ways of simulating multidimensionality with their relational **data bases**. One relational firm, Oracle, played both sides of the controversy by buying a major multidimensional **data base** provider. At this point, the issue of MOLAP versus ROLAP is not resolved. It is...

...each of the five books reviewed in this column was written in terms of relational **data bases**. I have not yet found a book that treats **data warehousing** from the multidimensional **data base** approach.

EXCELLENT FIRST EFFORTS

The first two books reviewed here on **data warehousing** were published in 1993. W.H. Inmon is the author of one (**Building the Data Warehouse**) and coauthor of the other with Chuck Kelley (**Rdb/VMS: Developing the Data Warehouse**). Inmon, one of the early practitioners of **data warehousing**, is a principal with a major **data warehouse** software firm. The book jacket and other sources bestow to him the imposing title of the father of **data warehousing**. Fortunately, **Building the Data Warehouse** lives up to the hype.

The Rdb/VMS version is a shortened subset of the...

...In some places, the modification consists of throwing in an occasional discussion of a relational **data base**. In others, paragraphs are added that describe how things work under the VMS architecture. Unless you are working in the VMS environment, **Building the Data Warehouse** is the preferred volume.

Inmon begins that book by nominally describing what he calls the... Actually, he describes the differences in data requirements between operational data and derived DSS data.

DATA WAREHOUSING 'S LIFE CYCLE

Inmon argues that in systems based on operational data, the classic systems development life cycle applies, with the first step being requirements gathering. In the **data warehouse** world, the life cycle is **reversed**. A simple **data warehouse** is built and then over time, as people understand what the data can and cannot...

...the warehouse evolves, the requirements become understood.

In other words, the life cycle of the **data warehouse** is data-driven rather than requirements-driven. Inmon notes that CASE tools are designed for requirements-driven analysis and hence do not apply here.

Data warehouses are designed and populated a step at a time and as such are evolutionary. The...

...IS environment all necessitate that the warehouse be built in an iterative, orderly manner.

THE DATA WAREHOUSING ENVIRONMENT

The **data warehouse** environment is characterized as a subject-oriented, integrated, nonvolatile, time-variant collection of data created ...of each customer transaction and hence are online systems that change continually as events occur, **data warehouses** are loaded periodically and use time as one of their dimensions. That does not mean...

...larger as time passes, because not as much detail is needed about older events. The **data warehouse** is also characterized by the use of metadata; that is, data about the data being...

...is the major design issue once the architecture is defined. Granularity determines the volume of **data stored** and affects the types of query that can be answered. In general, the volume of...

...the level of detail in a query. The author concludes by recommending that for large **data warehouses**, data be kept at two levels of granularity: a high level for recent data and...

...should be made is still an art that depends on the type of business involved.

Data warehouses also differ from conventional **data bases** in that they are usually denormalized--that is, the same data may appear several times...

...outputs that have to be made, thereby speeding system operation.

The chapters in Building the **Data Warehouse** that deal with **data base** aspects are much better than the ones that deal with DSSs or EISs. Although the...

...easy to read and filled with simple drawings that explain the concepts in the text.

DATA WAREHOUSING FOR THE USER

Unlike the previous two books, which focus on the **data base** designer, Inmon and R.D. Hackathorn's Using the **Data Warehouse** is directed toward the user and the **data base** administrator. Hackathorn, a former professor who now consults in **data base** issues, wrote Enterprise **Database** Connectivity, which was reviewed in INFORMATION SYSTEMS MANAGEMENT 11, no. 1 (1994).

In this book, Inmon and Hackathorn assume that the **data warehouse** exists and therefore focus on managerial and user issues. They also introduce the concept of the operational **data store** or ODS, which is an extension of the **data warehouse** to operational systems. The idea of

the **data store** is to create a central **data bank**, similar to the data arehouse, which integrates operational information obtained from a variety of applications...

...ODS contains information that is subject-oriented and integrated. However, the ODS differs from the **data warehouse** because it contains:

- * Current and near-current data but not historical data.
- * Detailed data but...

...nonvolatile
snapshots.

Because an ODS contains only current data, it is much smaller than a **data warehouse**. The authors assert that as a separate storage system, an ODS should never be combined with a **data warehouse**. They also recommend that the **data warehouse** be built first. The contents of the ODS serve as one of the inputs to the warehouse.

Data warehousing brings with it several managerial issues, many of which apply to all **data bases**. These include storage requirements, budgets, growth (which can be explosive), changing technologies, reports and reporting, and the development process. **Data warehousing** also provides managers with the ability to reduce the information processing done inside operational systems...

...users.

An extremely readable and useful chapter that deals with applications provides 10 examples of **data warehousing**. These include a steel manufacturing company that generates 40,000 data points from each batch...

...companies or indicate the cost savings achieved.

The book concludes with chapters on administering the **data warehouse** environment, migrating to the architected environment, and connecting to the **data warehouse**. The administration chapter covers many topics, most of them too briefly, and mainly provides the...

...problems. Of course, none of these options solves all the difficulties by itself.

Using the **Data Warehouse** nicely complements Building the **Data Warehouse**. The two books should be read together.

THE CHECKLIST APPROACH

Perhaps the easiest-to-read but most cursory book is Vidette Poe's Building a **Data Warehouse** for Decision Support. The book is stronger on **data warehousing** concepts ...only four short case studies, and does not define several important current concepts such as **data marts** (i.e., small, relatively cheap **data warehouses** for the departmental level), Codd's work on OLAP, data mining, or the so-called...

...point and click on DSS and EIS menu items).

Poe's work assumes a relational **data base** approach and, with minor exceptions, ignores the multidimensional approach. It is written in a prescriptive...

...not comprehensive, it is a good place for people with no experience in building a **data warehouse** to get started. It contains several

important thoughts, some of which follow:

- * Accelerated decision making...
- ...easily accessible.
- * Don't underestimate the effort needed to create the infrastructure to support the **data warehouse**.
- * Requirements definition is more difficult because a **data warehouse** requires developing a system to support undefined requests.
- * A **data warehouse** is not an operational system that people have to use to do their jobs...

...a set of definitions and short discussions of most of the major terms used in **data warehousing**. The diagrams in general are helpful, illustrating such ideas as alternative infrastructure required and arrangements...

...set of questions to ask executives about critical success factors.

The chapter on designing relational **data bases** for the **data warehouse** illuminates the various arrangements used. In particular, it clearly describes the idea of **star schema** (including fact tables and dimension tables), which were invented to make it possible to handle multidimensional data with relational **data bases**. The book contains useful but short discussions of the life cycle for **data warehouses**, which it attributes to DSSs, and the use of pilots for prototyping.

A chapter on...

...too brief.

THE VENDOR'S APPROACH

The most recent book is Ralph Kimball's **The Data Warehouse Toolkit**, which comes with a CD-ROM containing a sample **data warehouse** and **data bases** to go with it. Kimball, founder of Red Brick Systems, a major **data warehouse** vendor, was one of the designers of the Xerox Star.

The book takes an unusual...

...people and goods. For each case, an estimate is given of the size of the **data warehouse** that needs to be provided. Thus the grocery chain with two years of daily data...

...room and the front room. The back room refers to the tasks handled by the **data base** administrator, whereas the front room is for business-oriented people. Back-room functions deal with...

...online retrieval makes compression undesirable, but in OLAP applications compression can be justified economically.

PERSONALIZED DATA WAREHOUSING

Appendices summarize the design principles given in the text (there are 11 pages of them...

...the software on the CD-ROM. As part of the CD-ROM, Kimball provides

sample **data bases** for the case examples. By using the **data base** and the data models available on the CD-ROM, the reader is able to follow ...are shown in spreadsheet form. The software can be used by readers to create small **data warehouses** for their own use.

Because it contains many examples as well as the useful CD-ROM, this book is the best of the **data warehouse** books reviewed here.

Added material

PAUL GRAY is a professor in the programs in information...